REMARKS

The office action of March 30, 2006, has been carefully considered.

It is noted that claim 13 is objected to for containing various informalities.

Claims 1, 2, 4-7, 9 and 13 are rejected under 35 U.S.C. 102(e) over the patent to Norton et al.

Claims 1-4 and 6-13 are rejected under 35 U.S.C. 103(a) over EP 0650205 to Fujikami et al. in view of the patent to Beach et al.

Claims 1-4 and 6-13 are rejected under 35 U.S.C. 103(a) over Fujikami et al. in view of Alford et al.

Claim 3 is rejected under 35 U.S.C. 103(a) over Norton et al. in view of the patent to Park et al.

In view of the Examiner's objections to and rejections of the claims, applicant has amended claims 1 and 13.

Applicant has amended claim 13 to address the informalities pointed out by the Examiner. In view of these changes it is respectfully submitted that the objection to claim 13 as containing informalities is overcome and should be withdrawn.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the methods and constructions disclosed in the references.

Turning now to the references and particularly to the patent to Norton et al. discloses a method of producing biaxially textured buffer layers and related articles, devices and systems. It is respectfully submitted that Norton et al. do not disclose a superconducting cable and a process for producing a superconducting cable as recited in the amended independent claims now on file. Specifically, Norton et al. do not disclose a superconducting cable conductor, wherein the individual superconducting conductor elements of each single layer are arranged side-by-side in the layer, and the superconducting conductor elements contain a tape-type substrate coated with a superconducting material based on rare earth barium cuprate, and further wherein the superconducting material forms a layer having a thickness of at least 1 μm, so that the superconducting conductor elements are configured to withstand bending stress generated by winding, as in the presently claimed invention.

In view of these considerations it is respectfully submitted that the rejection of claims 1, 2, 4-7, 9 and 13 under 35 U.S.C. 102(b) over the above-discussed reference is overcome and should be withdrawn.

The reference to Fujikami et al. discloses a superconducting cable conductor.

The patent to Beach et al. discloses a method of depositing buffer layers on biaxially textured metal substrates.

The Examiner combined Fujikami et al. with Beach et al. in determining that claims 1-4 and 6-13 would be unpatentable over such a combination. Applicant submits that the combination does not teach the presently claimed invention.

In the office action the Examiner states that Fujikami et al. teach the superconducting cable structure of the present invention and Beach at al. teach that a specific type of the superconductor, a coated conductor, can be used in superconducting cables. Based thereon the Examiner considers the present superconducting cable conductor obvious in view of Fujikami et al. and Beach et al.

It should be noted that Fujikami et al. disclose a very specific superconducting cable conductor structure wherein strands of a superconducting material are arranged spirally on a former. To the contrary Beach et al. relate to the use of superconducting wire with multilayer composition in power transmission lines in general. There is no indication as to the suitability in a cable conductor of the specific structure of Fujikami et al. with the coated conductor being wound in spiral form.

Fujikami et al. explicitly emphasize the problem associated with oxide superconductors such as ceramic superconductors as being fragile and weak against mechanical strain (see page 2, lines 31 to 32). It is continued that there is a high possibility that an oxide superconductor which is covered with a silver sheath is broken when wound spirally. Though in the following reference is made to an oxide superconductor covered with a silver sheath, the problem of weakness against mechanical strain is also to be expected with coated conductors which are oxide superconductors, that is which are ceramics, and as such are fragile.

In the oxide superconductor wire of Fujikami et al. this problem is solved by a specific design of the wire, wherein the superconductor wire is composed of a number of superconductor filaments which are buried in a stabilizing material of silver or silver alloy as set out on page 3, lines 39 to 41. That is, according to Fujikami et al. a plurality of superconductor filaments of small diameter are buried in a stabilizing silver matrix rather than sheathing a superconductor

wire of relatively greater diameter with a silver coating as in the prior art referred to by Fujikami et al. That the diameter of each filament has to be very small is clear from the statement as to the numbers of filaments within a wire on page 4, lines 8 and 9, indicating that each wire can have 7 to 10,000, preferably 37 to 1,000 filaments.

Moreover, in order to reduce the risk of damaging bending, strain generated during winding is restricted to specific values of 0.5%, preferably 0.3% as indicated on page 4, lines 36 to 45.

In summary, Fujikami et al. clearly teach that ceramic superconductors are sensitive to mechanical stress such as bending and, thus, that specific provision must be taken for protecting such superconductors when being wound.

In view of this teaching of Fujikami et al., no person skilled in the art would consider that a coated conductor mainly composed of ceramic layers could be suitable in a cable structure as disclosed in Fujikami et al. subjecting the ceramic material to considerable bending stress. To this, please note the coated conductor as disclosed in Beach et al., for example in example 4, comprises in addition to the YBCO superconducting layer of 300 nm thickness further layers such as Eu_2O_3, Yttrium-stabilized-Zirconia (YSZ) and CeO_2 being all of ceramic nature, and thus are liable to breakage.

In view of this teaching no person skilled in the art would have actually considered to apply a coated conductor as disclosed by Alford et al. as such in a cable conductor wherein the coated conductor is subject to considerable bending stress when wound in a spiral shape on a former.

Thus, it is respectfully submitted that there is no motivation for combining the references, and even if combinable the combination does not teach the presently claimed invention.

In view of these considerations it is respectfully submitted that the rejection of claims 1-4 and 6-13 under 35 U.S.C. 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

The Alford et al. reference discloses high-temperature superconducting thick films. The Examiner combined Fujikami et al. with Alfors et al. in determining that claims 1-13 would be unpatentable over such a combination. Applicant submits that the combination does not teach the presently claimed invention.

As to Alford et al., here a coated conductor with the superconductor layer having a thickness of 1 to 2 μm, in particular 2 μm, as set out on page 181, right column and page 183,

right column is disclosed. As is clear, the problem of breakage on bending will increase with increasing layer thickness.

Fujikami et al. teach that the brittleness of ceramic superconductors requires that specific provisions have to be made when such ceramic superconductors are applied in spiral form.

In view of this teaching no person skilled in the art would have actually considered to apply a coated conductor of a thickness of 1 μm or more as disclosed by Alford et al. as such in a cable conductor wherein the coated conductor is subject to considerable bending stress when wound in a spiral shape on a former.

Thus, it is respectfully submitted that there is no motivation for combining the references, and even if combinable the combination does not teach the presently claimed invention.

In view of these considerations it is respectfully submitted that the rejection of claims 1-13 under 35 U.S.C. 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

Any additional fees or charges required at this time in connection with this application may be charged to Patent and Trademark Office Deposit Account No. 19-2825, order number 979-037.

Respectfully submitted,

By

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